

**General Notes:**

This report contains results for Metals and Glycols analyses only. All other parameters identified on the chain-of-custody form are included in separate reports. Lab Sample numbers 1201015-23, -24, -28, -35, -45, and -46 are not included in this report since these samples were designated for Volatile Organic analysis only.

For Work Order 1201015 - **This is Report 1 of 3.**

All samples were received intact and at proper temperature.

Some samples designated for the analysis of Orthophosphorous were received at the laboratory past the established holding times. Therefore, all samples were analyzed using the Total Phosphate method and results for the analysis by the Orthophosphorous method are not included in this report. Since the Orthophosphorous method was being used as a screening method to determine the need to analyze the sample by the Total Phosphate method, results for Total Phosphate are not impacted.

Samples designated for the analysis of Oil & Grease were received in sample containers inconsistent with the type needed for the routine extraction procedure. Therefore, all samples were extracted using the manual extraction technique.

Where applicable, sample results are qualified based on the highest level concentrations of field QC contamination found in the field, equipment, or trip blanks.

**Metals Analysis Note:**

Uranium, strontium, lithium, tin, and titanium were analyzed as an on-demand analysis.

Lead and zinc were detected in the equipment blank. (EB01). Therefore, as required for this project, sample results were qualified "B" when the values for lead and zinc were less than 10X the value reported for the equipment blank.

**Glycols by HPLC/MS/MS Note:**

Samples were analyzed for diethylene glycol (DiG) (CAS# 111-46-6), triethylene glycol (TriG) (112-27-6), tetraethylene glycol (TeG) (112-60-7), 2-butoxyethanol (2-Bu) (111-76-2) and 2-methoxyethanol (109-86-4) by HPLC/MS/MS (inst id: TQD-LCMSMS) on a Waters Atlantis dC18 3um 2.1 x 150mm column (s/n- 0141301481). See the case file for complete instrument method information.

An HPLC/MS/MS method does not currently exist for these analytes. ASTM D 7731-11 and EPA SW-846 Methods 8000C and 8321 were followed for method development and QA/QC limits where applicable. All applicable OASQA On Demand QA/QC protocols were followed.

The aqueous samples were injected without extraction onto the HPLC/MS/MS system

Refer to notes in the case file for additional information regarding the analysis.

**REPORT 1 of 3**

**General Notes:**

This report contains results for Volatiles (VOAs), Semivolatiles (SVOAs), and Alcohol analyses only. All other parameters identified on the chain-of-custody form are included in separate reports. Lab Sample numbers 1201015-06 thru -10, 1201015-12, -14, -16, -18, -20, -22, -27, -29, -32, -34, -36, -38, -40, -42 and -44 are not included in this report since these samples were designated for Metals and Mercury analyses only.

For Work Order 1201015 - **This is Report 2 of 3.**

Chain-of-Custody forms are included in Report 1 of 3 for this Work Order.

All samples were received intact and at proper temperature.

Analytical results for samples by the Orthophosphorus method are not included in this report. Instead samples were analyzed using the Total Phosphate method to eliminate any issues with holding times. Since the Orthophosphorus method was being used as a screening method to determine the need to analyze the sample by the Total Phosphate method, results for Total Phosphate are not impacted.

Samples designated for the analysis of Oil & Grease were received in sample containers inconsistent with the type needed for the routine extraction procedure. Therefore, all samples were extracted using the manual extraction technique.

Where applicable, sample results are qualified based on the highest level concentrations of field QC contamination found in the field, equipment, or trip blanks.

Unless otherwise noted below, all required instrument and method QC was run and was within criteria.

**SVOCs Analysis Note:**

All samples were extracted by EPA SW-846 Method 3520C followed by analysis using EPA SW-846 Method 8270D. Refer to notes in case file for additional information regarding the analysis.

Results for sample 1201015-26 are suspect. Although, all QC and lab blanks are acceptable for sample 1201015-26, low levels of certain compounds detected indicate possible glassware contamination.

For this project two additional compounds are added to the SVOC analysis; 2-methoxyethanol and 1-methylnaphthalene. A separate calibration curve is used for these compounds with quality control requirements per the On-Demand protocol. For 2-methoxyethanol, the analysis is also being completed on each sample using the HPLC/MS/MS technique (Glycol analysis). Since SVOC extraction efficiencies are problematic for 2-methoxyethanol, the results from the HPLC/MS/MS technique should be used for these samples. For samples 1201015-11 thru 43 the blank spike (LCS) quality control samples did not include these two compounds. Therefore, all quantitation limits for these samples are qualified estimated "UJ."

For samples 1201015-01 thru -05, quantitation limits for 2,4-dinitrophenol, 2-methoxyethanol, and hexachlorocyclopentadiene are elevated due to zero percent recovery in the low-spike quality control check (BS1). For samples 1201015-01 thru -05, quantitation limits for 4,6-dinitro-2-methylphenol, 4-nitrophenol, and, 2,3,4,6-tetrachlorophenol are elevated due to low percent recovery in the low-spike quality control check. For all samples, quantitation limits for pentachlorophenol are elevated due to low percent recovery in the low-spike quality control check. Results for all the mid-level spike quality control check (BS2) are within acceptance limits; therefore, quantitation limits are raised to the mid-level value. In the report, only 16 compounds are reported for blank spike quality control check samples. Quality control information about the additional spiked compounds is available in the case file.

Several surrogate recoveries were below acceptance limits for sample 1201015-41 due to an extraction chiller malfunction. Results are below the quantitation limit and are qualified as estimated "J" and may be biased low. Quantitation limits are qualified as estimated "UJ."

Results for a limited number of parameters found in all samples have been qualified "B" because of contamination found in either the method blank, field blank, or equipment blank.

**VOA Analysis Note:**

Acrylonitrile was analyzed on-demand using CLP equivalent methodology. This analyte does not appear in the data tables or the QC summary and all data for this compound is summarized here. Acrylonitrile was not detected in any of the samples above a quantitation limit of 2 ug/L. A four point curve was analyzed (2, 5, 10, and 20 ug/L). The samples were preserved to

a pH<2 with HCl. A low level second source blank spike analyzed at a concentration of 2 ug/L had a recovery of 98% on 1/31/12 and 98% on 2/8/12. A mid level second source blank spike analyzed at a concentration of 10 ug/L had a recovery of 116% on 1/31/12 and 119% on 2/8/12. A matrix spike and matrix spike duplicate pair was prepared using sample 1201015-17 (Sta. HW35) at a concentration of 5 ppb acrylonitrile with recoveries of 188% and 189 %, RPD=0.

The high matrix spike recovery for acrylonitrile and six compounds eluting in the same region is due to background interference in the sample.

2-Chloroethylvinyl ether is not included in the analysis. 2-Chloroethylvinyl ether breaks down in acidified samples.

In addition to the Tentatively Identified Compounds (TICs) reported, two samples exhibited a large peak that eluted too early in the chromatograph to estimate concentration. The mass spectra profile is consistent with the presence of propane (>93% probability). The samples are 1201015-37 (Sta. HW29z) and 1201015-39 (Sta. HW29).

**Alcohols Analysis Note:**

All required instrument QC was run and was within the required criteria.

**REPORT 2 of 3**

**General Notes:**

This report contains results for Inorganic analyses only. All other parameters identified on the chain-of-custody form are included in separate reports. Lab Sample numbers 1201015-23, -24, -28, -35, -45, and -46 are not included in this report since these samples were designated for Volatile Organic analysis only.

For Work Order 1201015 - **This is Report 3 of 3.**

Chain-of-Custody forms are included in Report 1 of 3 for this Work Order.

All samples were received intact and at proper temperature.

Analysis of samples by the Orthophosphorus method are not included in this report. Instead samples were analyzed using the Total Phosphate method to eliminate any issues with holding times. Since the Orthophosphorus method was being used as a screening method to determine the need to analyze the sample by the Total Phosphate method, results for Total Phosphate are not impacted.

Samples designated for the analysis of Oil & Grease were received in sample containers inconsistent with the type needed for the routine extraction procedure. Therefore, all samples were extracted using the manual extraction technique.

Where applicable, sample results are qualified based on the highest level concentrations of field QC contamination found in the field, equipment, or trip blanks.

Unless otherwise noted below, all required instrument and method QC was run and was within criteria.

**TDS Analysis Note:**

Results for the equipment blank (1201015-01), field blank (1201015-02) and samples 1201015-03-05,11,13,15,17,19,21,25, 26, 31 and 33 are qualified estimated "B" due to contamination of the laboratory method blank, equipment blank and field blank.. Results for sample 1201015-17 are qualified estimated "J" due to a high relative percent deviation of the laboratory duplicate.

**TSS Analysis Note:**

All required instrument QC was run and was within the required criteria.

**Anions Analysis Note:**

All required instrument QC was run and was within the required criteria.

**Nitrite/Nitrate and Total Nitrogen Analysis Note:**

Samples were run as an on-demand analysis.

Result for nitrate/nitrite for sample 1201015-17 was qualified estimated 'J' due to the laboratory matrix spike results outside of criteria limits.

**Total Phosphorus Analysis Note:**

Samples were run as an on-demand analysis.

Result for total phosphorus for sample 1201015-18 was qualified estimated 'J' due to the laboratory matrix spike results outside of criteria limits.

**Oil and Grease Analysis Note:**

Samples were run as an on-demand analysis.

The laboratory blank spike result was outside the higher criteria limit. Since all sample results were less than the quantitation limit, there is no impact on the data.

Samples were received in containers not conducive to use on the Horizon SPE-DEX automated system. Therefore, manual extraction technique was used for all samples. Refer to notes in the case file for additional information.

**Mercury Analysis Note:**

All required instrument QC was run and was within the required criteria.

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